

NEW CLAIMS 5-7

5. A method for producing dual-phase steels from the hot-rolled state with a two-phase microstructure of 70 % to 90 % ferrite and 30 % to 10 % martensite by a controlled temperature guiding and defined cooling strategy during the cooling of the steels, inter alia by means of water cooling after their finish rolling, wherein in a first cooling stage at a first slow cooling rate the cooling curve enters the ferrite region and in a second cooling stage at a second cooling rate faster than the first slow cooling rate further cooling is carried out to temperatures below the martensite starting temperature, the method comprising the steps of:

carrying out the first cooling stage at a cooling rate of 20-30 K/s in a cooling stretch comprised of several water cooling stages positioned successively at a spacing from one another;

allowing the cooling curve in the first cooling stage to enter the ferrite region at a temperature still so high that the ferrite formation takes place quickly; and,

before beginning the second cooling stage, which follows without intermediate air cooling and holding time directly after the first cooling stage, transforming already at least 70 % of the austenite to ferrite by continuing cooling of the first cooling stage during the transformation of the austenite into ferrite up to the desired ferrite contents of at least 70 %.

6. A device for performing a method for producing dual-phase steels from the hot-rolled state with a two-phase microstructure of 70 % to 90 % ferrite and 30 % to 10 % martensite by a controlled temperature guiding and defined cooling strategy during the cooling of the steels, inter alia by means of water cooling after their finish rolling, wherein in a first cooling stage at a first slow cooling rate the cooling curve enters the ferrite region and in a second cooling stage at a second cooling rate faster than the first slow cooling rate further cooling is carried out to temperatures below the martensite starting temperature, wherein the first cooling stage is carried out at a cooling rate of 20-30 K/s in a cooling stretch comprised of several water cooling stages positioned successively at a spacing from one another, wherein the cooling curve is allowed to enter the ferrite region at a temperature still so high that the ferrite formation takes place quickly, and, before beginning the second cooling stage, which follows without intermediate air cooling and holding time directly after the first cooling stage, already at least 70 % of the austenite is transformed to ferrite by continuing cooling of the first cooling stage during the transformation of the austenite into ferrite up to the desired ferrite contents of at least 70 %; the device comprising a cooling stretch arranged behind the last finish roll stand (1) and having several water cooling stages (7) positioned successively at a spacing from one another.

7. The device according to claim 6, wherein the number of water cooling stages, an effective length of the water cooling stages, and the spacing from one another are changeable or continuously adjustable in the case of quantity control.